

REMARKS

In response to the Office Action of August 15, 2006, Claims 1-7, 9-15 and 17-21 have been amended. Claims 1-21 are pending. Reconsideration of the claims in view of the remarks provided herein below and withdrawal of the present rejections are respectfully requested.

In paragraph 1 on page 2 of the Office Action, the disclosure was objected to because the subscript "X" should not be a subscript so that NiFeX and CoFeX should be NiFeX and CoFeX. Also, claim 6 was noted as pending from claim 4 rather than claim 3, claim 14 should depend from claim 12, claim 15 should depend from claim 14, and claim 21 should depend from claim 20.

Applicants respectfully traverse the objection, but in the interest of expediting prosecution have amended the specification and the claims to correct the typographical error of the subscript "X" and the dependency of claims 6, 14, 15 and 21.

In paragraph 3 on page 3 of the Office Action, claims 1-3 and 9-11 were rejected under § 102(e) as being anticipated by Carey et al. In paragraph 5 on page 3 of the Office Action, claims 8, 16 and 17 were rejected under § 103(a) as being unpatentable over Carey et al.

In paragraph 6 on page 4 of the Office Action, claims 4-7, 12-15 and 18-21 were indicated as being objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants respectfully traverse the rejection, but in the interest of expediting prosecution have amended claims 1-7, 9-15 and 17-21 to more particularly distinguish the invention over the cited reference.

Carey et al. show a biasing structure for a CIP sensor as disclosed as having shortcomings in Applicant's specification. Carey et al. show a longitudinal bias structure that includes a soft ferromagnetic bias layer and an anti-ferromagnetic (AFM) bias layer. However, as the thickness of the AFM layer is reduced, the exchange bias also decreases. Moreover, the longitudinal bias structure of Carey et al. is specifically required to have a width along the off-track direction of the in-stack longitudinal bias structure that is greater than the track-width of the CIP sensor.

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In contrast, independent claims 1, 9 and 17 recite a spacer layer, having a width substantially equal to the spin valve stack and an in-stack biasing layer disposed over the spacer and having a width substantially equal to the width of the GMR sensor stack. Accordingly, improved pinning of a free-layer in a CIP GMR sensor stack is provided using dual in-stack biasing layers. The sensor stack is made thin because an anti-ferromagnetic layer is not necessary in the stack to bias the free-layer. However, an antiferromagnetic layer may be formed on both sides of the in-stack layers to provide an off-track bias layer.


Accordingly, Applicant respectfully submits that Carey et al. fail to disclose, teach or suggest the elements recited in amended claims 1-21.

On the basis of the above amendments and remarks, it is respectfully submitted that the claims are in immediate condition for allowance. Accordingly, reconsideration of this application and its allowance are requested.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Attorney for Applicant, David W. Lynch, at 423-757-0264.

Respectfully submitted,

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